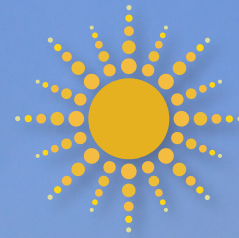


Pollinator Communities



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Global food and feed production rely on a myriad of factors that all interact to sustain and nourish practically every living organism on the plant. Virtually all life is completely dependent on plant species which harvest light energy from the sun via photosynthesis and convert this light to nutrient-dense seeds, fruit and vegetables in addition to continually replenishing atmospheric oxygen.

One-third of all food consumed by the human race also is dependent on pollination by primarily a diverse group of insects which includes honey bees, native bees, ants, flies, hoverflies, mosquitoes, butterflies, moths and various flower beetles. Plant pollination also is achieved in some instances by vertebrates such as bats and birds in addition to monkeys, lemurs, opossums, and rodents. The principle focus of this article is pollination affected by insect communities.

In recent years, declines recorded in populations and health of honey bees in the U.S. and overseas have drawn attention to the essential aspects of pollination in sustainable food production. Honey bees, *Apis mellifera*, are not native to the

U.S. and were introduced to North America by European settlers several centuries ago. However, a decline in population and health is not exclusive to honey bees. Dramatic declines in native bee populations, indigenous to the U.S., also are being recorded, which is even more concerning. Native bee species consist of an extremely diverse group, which numbers 4,000 different species who are responsible for the majority of plant populations, especially with native plant species. An excellent review of native bee species, their anatomy, habitats and recommendations for their conservation and protection, was written by Moisset & Buchanan in **“Bee Basics: An introduction to our native bee species.”**

Reasons for declines in pollination communities include diseases, poor nutrition, stress, pesticides and habitat destruction. Regardless of the cause of these declines, it is clear that protection of pollinator communities must be prioritized. Unfortunately, it is all too common that modern agricultural production methods are single-handedly blamed for these declines in pollinator communities. The agricultural community has a distinct responsibility and vested interest in sustaining and protecting

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pollinator communities and has developed several initiatives within the Conservation Stewardship Program (CSP) at local, state and federal levels to address this. **“Best Management Practices (BMPS) for Pollinator Protection in Canola Fields,”** **“Bees and Cover Crops: Using Flowering Cover Crops for Native Pollinator Conservation”** and **“Improved Crop Rotation to Provide Benefits to Pollinators”** are examples of official publications that outline guidelines and programs for farmers. However, the general public also has a responsibility in this regard.

Continued and unrestricted encroachment of businesses, residential developments and roads into rural areas is a serious challenge to pollinator communities through loss of native habitats. There are some excellent opportunities for the general public and businesses to enhance pollinator communities in urban and suburban areas. Less focus on creating pristine, manicured, but biologically deficient yard and garden environments with more attention on providing sustained nutrition and habitat for pollinators would be a very effective conservation strategy. Recommendations for protecting and sustaining pollinator communities tailored for individual homeowners and horticulturalists were recently developed by Kathleen M. Prough of Indiana Department of Natural Resources, Division of Entomology and Plant Pathology **“Gardening for Honey Bees.”** This document provides a comprehensive overview of different plant species and their value to pollinator communities.

It is incumbent on everybody to familiarize themselves with the pollinator communities they interact with, be it large scale commercial farming operations or individual homeowners so that strategies to co-exist with these extremely valuable species can be developed. Of course, increased awareness and understanding of the various species of native bees and honey bees that may become more prevalent in yards, lots and gardens through pollinator enhancement will be necessary to avoid unwanted interactions, as a tiny minority of cases could prove fatal. **“Information on Bee Stings. Source Mayo Clinic”** For more detailed information on this matter consult with your personal doctor.

Brassica species are well known for their benefits to pollinator communities. Canola is a member of the Brassica family and possesses an entomophilic (insect loving) flower structure. Canola has an open flower design for easy access to a wide range of pollinator species and an abundant supply of nutritious pollen and nectar. Canola pollen typically contains 25% protein which consists of a blend of high-quality amino acids, 10 of which are essential for bees, and approximately 7% fat content. Detailed information on pollen, nectar and their compositions can be reviewed at **“Honey Bees on Canola”** and **“The Benefits of Pollen to Honey Bees.”** Canola also comes in both winter and spring cultivars and despite inaccurate information frequently cited online, Non-GM Canola cultivars are also available.

The annual establishment of small areas of canola in gardens, yards and unused portions

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of commercial business properties would provide valuable habitat and nutrition for pollinator insects. In regions of the country where fall canola can be grown, “**USDA Plant Hardiness Zones 6 and above**,” this canola will be one of the first species to produce attractive flowers in the spring, providing a much-needed supply of fresh nectar and pollen to pollinator communities that have depleted hive resources during hibernation and are hungry for new food supplies. In addition, early maturity spring seeded canola cultivars can be seeded in these same zones, which will serve to prolong the blooming period of canola and consequent food supply for pollinators.

Spring seeded canola cultivars can also be established in “**USDA Plant Hardiness Zones 5 and below**” where pollinators hibernate for longer in the spring and are very reliant on plants that are strong suppliers of pollen and nectar throughout the summer and early fall months. This is essential to build up hive reserves for hibernation during the typically harsh and long winters in these zones.

Season long supplies of pollen and nectar serve to fortify and stabilize local pollinator communities, so canola plants should be complemented with plant species that flower later into the season as well. There is a wide and diverse array of flowering plant species that includes trees, shrubs and annual/perennial flowering plants that may already be present or can be integrated to provide a season long sequential flowering period to sustain and protect the pollinator communities we all rely on.

FOR MORE INFORMATION and for supplies of canola seed to enhance your local pollinator communities, please contact Robert Amstrup at (701) 226 8958 or email info@photosyntech.com.